In the Claims

We claim:

Claim 1 (Currently amended): A method for the production of retinal cells, ~~useful in transplantation therapy, comprising the steps of~~ comprising:

(i) obtaining one or more mammalian adult Müller cells; and

(ii) culturing the cells in the presence of an extracellular matrix protein and a growth factor to thereby induce dedifferentiation of the Müller cells into a progenitor phenotype.

Claim 2 (Currently amended): ~~A~~ The method according to claim 1, wherein the extracellular matrix protein is fibronectin and the growth factor is EGF.

Claim 3 (Currently amended): ~~A~~ The method according to claim 1 ~~or claim 2~~, wherein the Müller cells are human Müller cells.

Claim 4 (Currently amended): ~~A~~ The method according to ~~any preceding claim~~ claim 1, ~~wherein the dedifferentiated cells are further cultured~~ further comprising culturing the dedifferentiated cells in the presence of an extracellular matrix protein and a differentiation ~~agents~~ agent, to thereby induce the dedifferentiated cells to adopt a specific differentiated cell phenotype.

Claim 5 (Currently amended): ~~A~~ The method according to claim 4, wherein the extracellular matrix is selected from the group consisting of matrigel, fibronectin, collagen, ~~or~~ and laminin, and the differentiation ~~agents are~~ agent is selected from the group consisting of FGF-2 retinoic acid, 3,3',5-Triiodo-L-Thyronine, insulin, insulin-like growth factor, ~~or~~ and TGFβ.

Claim 6 (Currently amended): A composition comprising de-differentiated Müller cells obtainable by a method ~~as defined in any preceding claim~~ comprising:

(i) obtaining one or more mammalian adult Müller cells; and

(ii) culturing the cells in the presence of an extracellular matrix protein and a growth factor to thereby induce dedifferentiation of the Müller cells into a progenitor phenotype.

Claim 7 (Currently amended): ~~A~~ The composition according to claim 6, ~~for therapeutic use~~ wherein the de-differentiated Müller cells are human cells.

Claim 8 (Currently amended): ~~Use of a retinal cell obtainable by a method as defined in any of claims 1 to 5, in the manufacture of a medicament for the treatment of a condition associated with cell loss or cell damage~~ A method for treatment of a condition associated with cell loss or cell damage, comprising administering an effective amount of retinal cells to a mammal suffering from the condition, wherein the retinal cells are:

(i) mammalian adult Müller cells that have been induced to de-differentiate into a progenitor phenotype prior to said administering; or

(ii) the de-differentiated cells of (i), wherein the cells have been induced to differentiate to adopt a specific differentiated cell phenotype prior to said administering.

Claim 9 (Currently amended): ~~Use~~ The method according to claim 8, wherein the ~~cell is a human cell~~ retinal cells are human cells.

Claim 10 (Currently amended): ~~Use~~ The method according to claim 8 ~~or claim 9~~, wherein the ~~retinal cell is a pluripotent Müller stem cell~~ retinal cells are pluripotent Müller stem cells.

Claim 11 (Currently amended): ~~Use~~ The method according to ~~any of claims 8 to 10~~ claim 8, wherein the condition is associated with cell loss or damage in ~~a mammalian~~ the mammal's eye.

Claim 12 (Currently amended): ~~Use~~ The method according to ~~any of claims 8 to 11~~ claim 8, wherein the condition to be treated is selected from the group consisting of: age-related macular degeneration, proliferative diabetic retinopathy, proliferative vitreoretinopathy, retinal detachment, retinitis pigmentosa, glaucoma and optic nerve injury, and retinal degeneration.

Claim 13 (Currently amended): ~~Use~~ The method according to ~~any of claims 8 to 12~~ claim 8, wherein the retinal cells are autologous cells, derived from the ~~patient~~ mammal to be treated,

heterologous cells stored in a cell bank, or genetically modified cells derived from the ~~patient~~ mammal or cell bank.

Claim 14 (Currently amended): ~~Use of a composition comprising a matrix protein and one or more growth factors, in the manufacture of a medicament for administration to a damaged eye, to repair the damage~~ A method for repairing a damaged eye, comprising administering a composition comprising a matrix protein and one or more growth factors to the damaged eye.

Claim 15 (Currently amended): A structure for grafting to a patient, the structure comprising multiple layers of a matrix supporting material onto which is incorporated a plurality of retinal neurons, wherein the retinal neurons of one layer ~~may be~~ are of the same or different phenotype to those of other layers.